Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-09-18-04** **Date: 21-09-18**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction of Compound Wall, Chainlink fencing to Vehicle Parking, Dismantling of existing building and Beatification works to Indira Canteen Building in Ward No.05
Agency	:	Executive Engineer, KRIDL, No.280, 59th cross, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagar, Bangalore-10.
Customer's Reference	:	BBMP/EE/BTP/WO/120/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-18
Sample ID No	:	2018-09-18-04 /01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	19-09-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	2.55	–
2	Finess by Air permeablity method (m^2/kg,Min)	287.5	225m^2/kg, Min
3	Density (gm/cc)	3.12	–
4	Standard Consistency (%)	28.5%	Not specified
5	Initial Setting time (minutes)	155 minutes	Not less than 30 minutes
6	Final Setting time (minutes)	260 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method) (mm)	2mm	Not more than 10 mm

Note:

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Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-09-18-04** **Date: 17-10-2018**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction of Compound Wall, Chainlink fencing to Vehicle Parking, Dismantling of existing building and Beatification works to Indira Canteen Building in Ward No.05
Agency	:	Executive Engineer, KRIDL, No.280, 59th cross, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagar, Bangalore-10.
Customer's Reference	:	BBMP/EE/BTP/WO/120/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-2018
Sample ID No	:	2018-09-18-04 /01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	19-09-2018
Environmental Conditions during test	:	Temperature: 26˚C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results (N/mm^2)	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	56.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-09-18-04** **Date: 21-09-18**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction of Compound Wall, Chainlink fencing to Vehicle Parking, Dismantling of existing building and Beatification works to Indira Canteen Building in Ward No.05
Agency	:	Executive Engineer, KRIDL, No.280, 59th cross, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagar, Bangalore-10.
Customer's Reference	:	BBMP/EE/BTP/WO/120/2018-19
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	18-09-18
Sample ID No	:	2018-09-18-04 /02(a)
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	18-09-18

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	423	423	2.8	97.2	90-100
3	20 mm	5852	6275	41.8	58.2	30-70
4	10 mm	4232	10507	70.0	30.0	10-35
5	4.75 mm	4225	14732	98.2	1.8	0-5
6	Pan	268	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-09-18-04** **Date: 21-09-18**

Sample ID No : 2018-09-18-04 /02(a)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.3	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.5	
3	Specific Gravity	2.68	–
4	Bulk Density(Loose) (Kg/l)	1.56	–
5	Bulk Density(Compacted) (Kg/l)	1.59	–
6	Water Absorption(%)	0.21	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-09-18-04** **Date: 21-09-18**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction of Compound Wall, Chainlink fencing to Vehicle Parking, Dismantling of existing building and Beatification works to Indira Canteen Building in Ward No.05
Agency	:	Executive Engineer, KRIDL, No.280, 59th cross, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagar, Bangalore-10.
Customer Reference	:	BBMP/EE/BTP/WO/120/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-18
Sample ID No	:	2018-09-18-04 /02(b)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	18-09-18

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	255	255	5.1	94.9	90-100
3	10 mm	2789	3044	60.9	39.1	25-55
4	4.75 mm	1545	4589	91.8	8.2	0-10
5	Pan	411	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-09-18-04** **Date: 21-09-18**

Sample ID No : 2018-09-18-04 /02(b)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	**13.2**	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	**12.4**	
3	Specific Gravity	**2.65**	_
4	Bulk Density(Loose) (Kg/l)	**1.53**	_
5	Bulk Density(Compacted) (Kg/l)	**1.55**	_
6	Water Absorption(%)	**0.22**	_
7	Aggregate crushing Value(%)	**24.1**	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	**23.8**	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Format No: CP/TF/01

TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-09-18-04** **Date: 21-09-18**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Construction of Compound Wall, Chainlink fencing to Vehicle Parking, Dismantling of existing building and Beatification works to Indira Canteen Building in Ward No.05

Agency : Executive Engineer, KRIDL, No.280, 59th cross, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagar, Bangalore-10.

Customer's Reference : BBMP/EE/BTP/WO/120/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 18-09-18

Sample ID No : 2018-09-18-04 /03

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 18-09-18

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	85	85	8.5	91.5	90-100	90-100	90-100	95-100
3	2.36 mm	145	230	23.0	77.0	60-95	75-100	85-100	95-100
4	1.18 mm	165	395	39.5	60.5	30-70	55-90	75-100	90-100
5	600 micron	187	582	58.2	41.8	15-34	35-59	60-79	80-100
6	300 micron	175	757	75.7	24.3	5-20	8-30	12-40	15-50
7	150 micron	155	912	91.2	8.8	0-10	0-10	0-10	0-15
8	Pan	88	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-09-18-04** **Date: 21-09-18**

Sample ID No : 2018-09-18-04 /03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	–
2	Specific Gravity	2.59	–
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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Format No: CP/TF/2017

TEST REPORT FOR PLASTER SAND

Lab ID	:	**CP-2018-09-18-04** **Date: 21-09-18**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Constrution of Compound Wall, Chainlink fencing to Vehicle Parking, Dismantling of existing building and Beatification works to Indira Canteen Building in Ward No.05
Agency	:	Executive Engineer, KRIDL, No.280, 59th cross, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagar, Bangalore-10.
Customer's Reference	:	BBMP/EE/BTP/WO/120/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-18
Sample ID No	:	2018-09-18-04/04
Sample Type	:	Plaster sand
Reference to BIS codes	:	IS: 383 : 2016 (Specification for Coarse and fine Aggregates) IS1542:1992 (Sand for Plaster - Specification) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	18-09-18
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS: 2116-1980 (RA-2007)
1	10 mm	0	0	0	100	100
2	4.75 mm	36	36	3.6	96.4	95-100
3	2.36 mm	17	53	5.3	94.7	95-100
4	1.18 mm	45	98	9.8	90.2	90-100
5	600 micron	101	199	19.9	80.1	80-100
6	300 micron	216	415	41.5	58.5	20-65
7	150 micron	501	916	91.6	8.4	0-15
8	Pan	84	1000	100	0	---

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TEST REPORT FOR PLASTER SAND

Lab ID : CP-2018-09-18-04 Date: 21-09-18

Sample ID No : 2018-09-18-04/04

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.3	–
2	Specific Gravity	2.51	–
3	Material finer than 75 micron(%)	8.1	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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Format No: CP/TF/01

TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	**CP-2018-09-18-04** **Date: 22-09-18**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Constrution of Compound Wall, Chainlink fencing to Vehicle Parking, Dismantling of existing building and Beatification works to Indira Canteen Building in Ward No.05
Agency	:	Executive Engineer, KRIDL, No.280, 59th cross, 17th 'C' Main road, 3rd 'Y' Block, Rajajinagar, Bangalore-10.
Customer's Reference	:	BBMP/EE/BTP/WO/120/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-18
Sample ID No	:	2018-09-18-04 /05
Sample Type/Size	:	Solid concrete blocks of size (400X200X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	19-09-18

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185 (Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	400	201	202	16241	32.480	1999.9	1989.2	Not less than 1800Kg/m^3
2	402	203	203	16566	32.550	1964.9		
3	401	201	202	16281	32.610	2002.9		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185 (Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.590	32.310	3.96	3.82	Shall not be more than 10% by mass
2	33.470	32.280	3.69		
3	33.690	32.450	3.82		

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Lab ID : CP-2018-09-18-04 Date: 22-09-18

Sample ID No : 2018-09-18-04 /05

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	402	203	201	Length : ± 5mm Breadth : ± 3mm Height : ± 3mm
2	401	201	200	
3	404	203	198	
4	403	201	203	
5	400	203	201	
6	401	201	203	
7	402	202	198	
8	401	200	201	
9	402	201	203	
10	402	203	202	
11	401	201	200	
12	403	203	199	
13	401	201	203	
14	402	200	200	
15	401	199	201	
16	402	201	203	
17	403	202	201	
18	400	203	203	
19	401	201	201	
20	402	203	202	
Average of 20	**402**	**202**	**201**	

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ID : **CP-2018-09-18-04** **Date: 22-09-18**

mple ID No : 2018-09-18-04 /05

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm^2)	(KN)	N/mm^2	(N/mm^2)
1	402	203	81606	398.8	4.9	4.8
2	401	201	80601	389.9	4.8	
3	404	203	82012	387.7	4.7	
4	403	201	81003	388.1	4.8	
5	400	203	81200	391.8	4.8	
6	401	201	80601	390.6	4.8	
7	402	202	81204	385.7	4.7	
8	401	200	80200	383.3	4.8	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	**Minimum average**	**Minimum Individual units.**
C (5.0)	5.00 N/mm^2	4.00 N/mm^2
C (4.0)	4.00 N/mm^2	3.20 N/mm^2

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